MANUFACTURER

TEP Ex d.o.o. , Medarska 69, HR-10090 Zagreb
tel. 049/222-900, fax 049/426-450, e-mail: tepex@tepex.hr, www.tepex.hr

PURPOSE

Explosion protected control units type SKX 16 – SKX 20, independently or in combination coupled record (combination), are intended for the management, distribution and signaling in the power circles::

- in hazardous areas due to the presence of flammable and explosive gases, vapors or mists in Zones 1 and 2
- in hazardous areas due to the presence of flammable and explosive dust in Zones 21, 22

TYPE OF PROTECTION

The explosion protection ensure utilizing types of protection:

- EN 60079-0:2012,
- EN 60079-1:2007,
- EN 60079-7:2007,
- EN 60079-11:2012,
- EN 60079-18:2009,
- EN 60079-31:2009.

Apparatus category and marking of explosion-protection:

Certificate:	EXA 14 ATEX 029
Marking:	CE 2465
Apparatus category and marking of explosion-protection:	II 2G Ex d e mb ia/ib IIC T4 - T6 Gb II 2D Ex tb IIIC T80°C Db
Ambient temperature:	$-20ºC \leq T_a \leq +50ºC$
Degree of protection:	IP 66
Resistance to shock:	IK 08

CONSTRUCTION

In and on Ex e enclosure or combination of multiple enclosures, interconnected by bushing, are mounted " Ex e d m ia/ib" and Ex e built-in components and actuator and indicators.
There are no limitation in orientation of encosure/combination of multiple enclosures, (longer side of enclosure is mounted horizontally or vertically) and the manner of which the mounting is set to the surface.
In horizontal orientation of enclosure, built-in components and actuator and indicators are mounted in maximum two rows.
In vertical orientation of enclosure , built-in components and actuator and indicators are mounted in maximum:

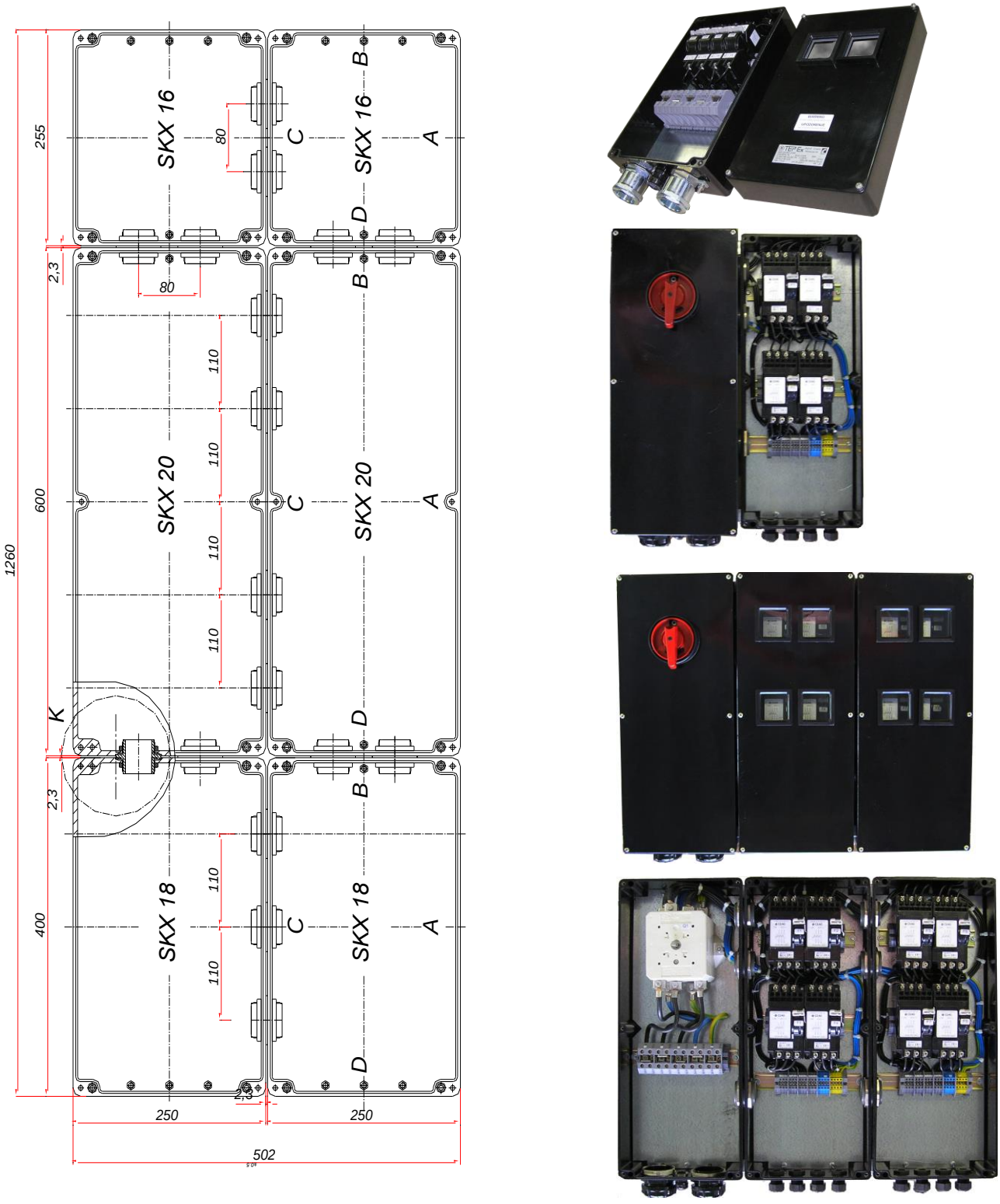
- SKX 16 - 2 rows
- SKX 18 - 3 rows
- SKX 20 - 5 rows

The actual nuber of mounted rows depends on the device configuration.
Circuit breaker 3p/4p I_{th} = 40 A, 80 A with its matching actuatuator or block NH 00 main fuse always occupies two hole rows,
Actuator and indicators – circuit breaker which are not connected with the actuaror, always occupie one and a half row. In one row there can be maximaly be:

- SKX 16 - 6 pols, horizontal and vertical orientation of the enclosure,
- SKX 18 - 12 pols vertical, 8 pols horizontal orientation of the enclosure,
- SKX 20 - 18 pols vertical, 12 pols horizontal orientation of the enclosure.

Permitted installation and current loading of terminals is determined with table of maximum losses of terminal boxes SKX16/E. Table is expanded with 50 mm^2 and 70 mm^2 terminals, and same data is valid as for 35 mm^2 terminals.
Possible combinations, number and distribution of actuators and indicators and built-in components are determined by certification drawings.

Built-in components are installed in enclosures with screw fitting connection to steel base plate 2 mm, in such way that they provide clearance according to standards (creepage distances are determined by component construction) minimum 12 mm of clearance between Ex e terminals and minimum 50 mm between Ex e and EX i terminals.
Control units, generally, are not factory-wired. When they are shipped wired, wiring is done with H07V-K type cables with appropriate cross-section with lug fastons.
Distribution of intrinsic safe and non- intrinsic safe wiring is done separately, without mutual crossings.
Certified Ex e cable glands, chosen according to cable type are used for cable entries. If metal cable glands are used, an external earthing terminal is mounted next to them. Unused cable entries are closed with EX e plugs.
For intrinsic safe circuits blue (RAL 5012) terminals are used. For cable entry of intrinsic safe circuits into enclosure cable glands with blue cable glands nut is used.
Device is designed in accordance with EN 60493-1:1991.+A1:2004, EN 60947-7-1,2,3:2002, and all other connected standards.



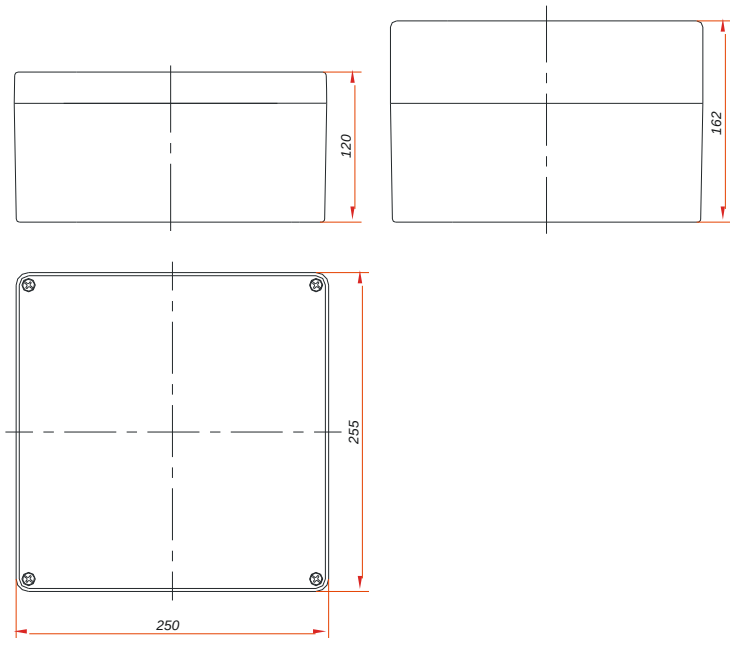
Example of design SKX combination

TECHNICAL DATA

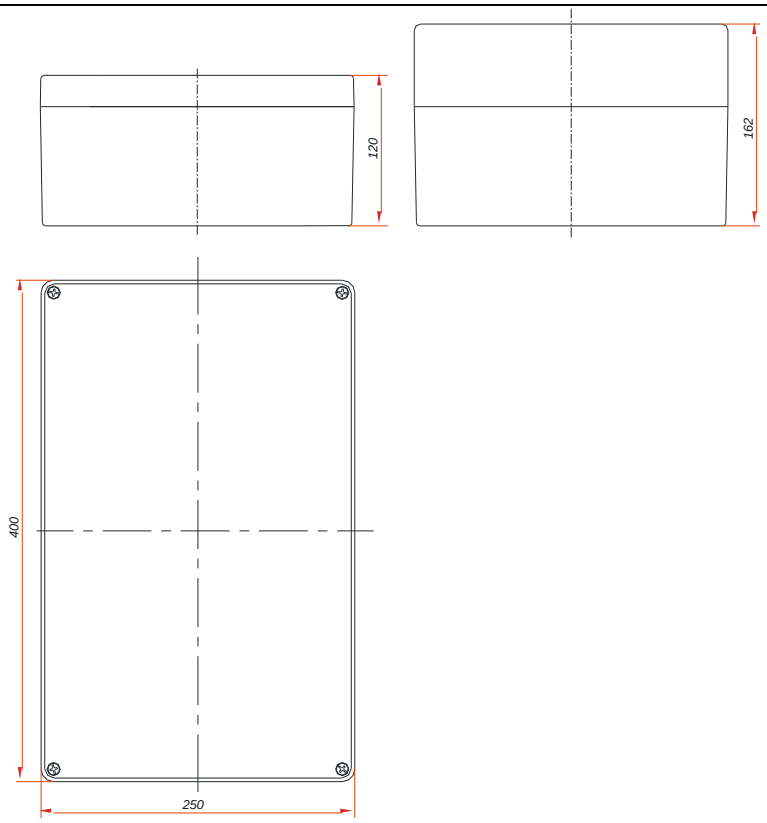
Rated insulation voltage U_i :	690 V AC (terminal type SL.. U_i=400V AC)
Nominal current I_{th} :	up to 80A
PE terminals (inside the enclosure):	max. 2x4 mm^2+2x2,5 mm^2 , 3x4 mm^2 , 2x6 mm^2 – solid, stranded, flexible
Cover screw:	Screw M6x30 (Z4) - 4.8 A2 Tightening torque 1,5 Nm
Cable glands:	Tightening torque of cable gland nut and body, depending on the size, according to the manufacturer's instructions
Surface resistance:	< 10^9 Ω
Energy shock:	7 J
Colour:	Black , RAL 9005
Dimensions LxWxH (without cable glands):	SKX 16: 255x250x120/160 mm SKX 18: 400x250x120/160 mm SKX 20: 600x250x120/160 mm
Mounting dimensions:	With screw through hole ϕ12/ϕ7mm SKX 16: 235 x 200 mm SKX 18: 380 x 200 mm SKX 20: 580 x 200 mm

Dimension drawings for moulded plastic enclosures (without cable glands):

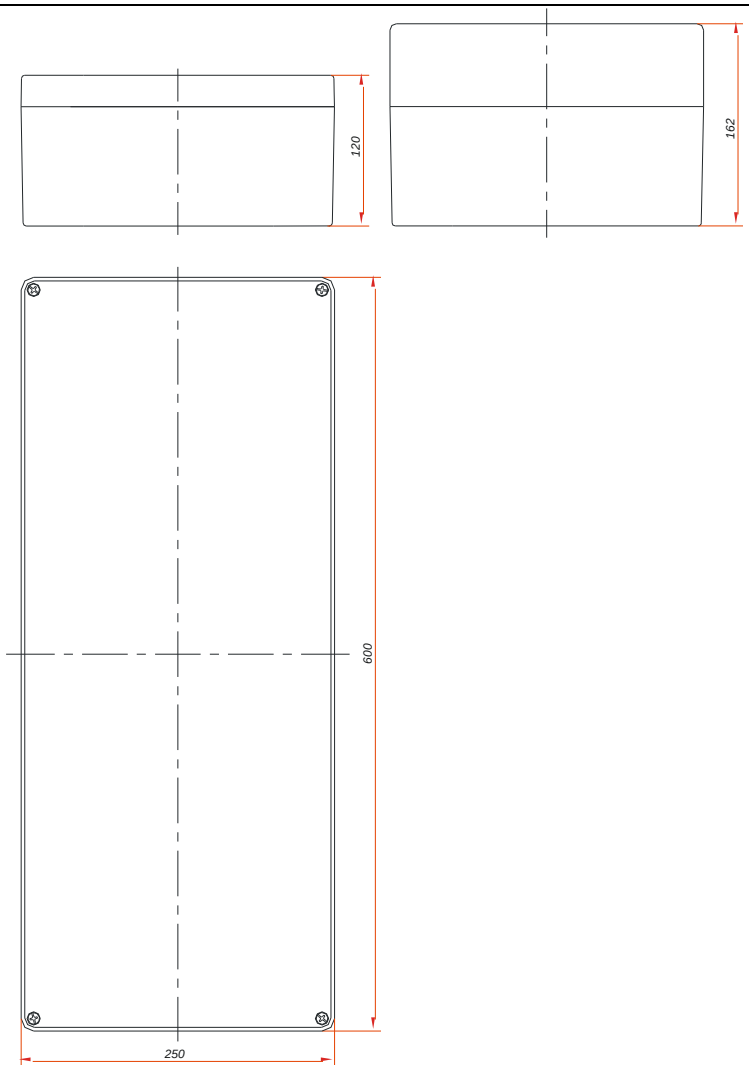
SKX 16/



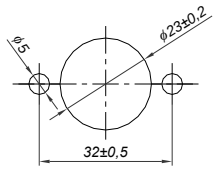
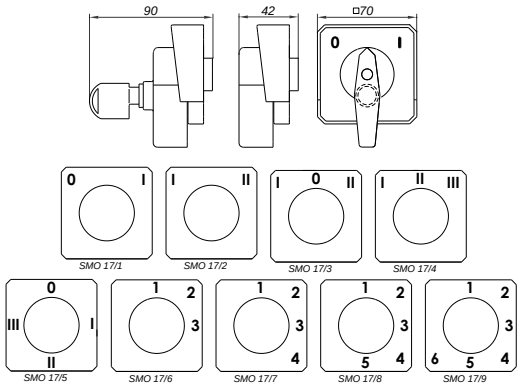
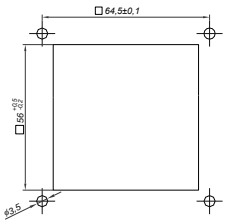
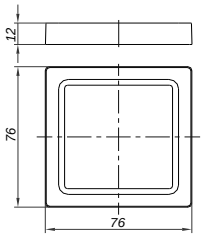
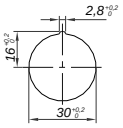
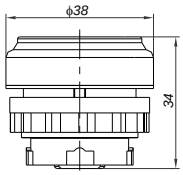
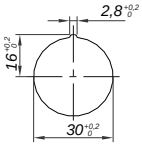
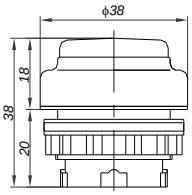
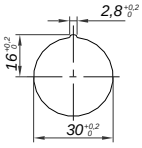
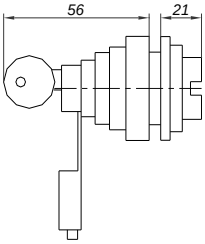
SKX 18/

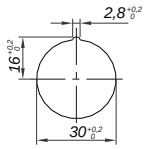
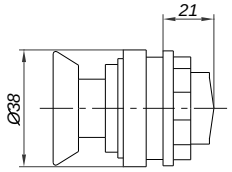
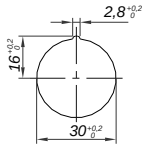
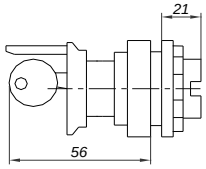
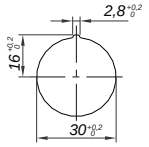
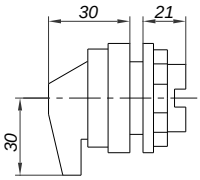
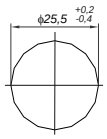
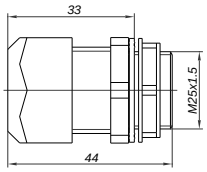
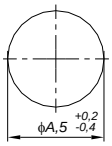
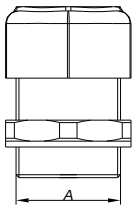
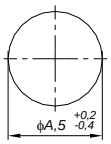
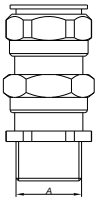
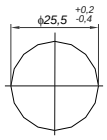
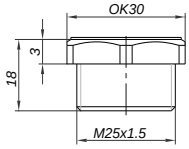
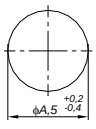
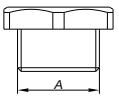


SKX 20/

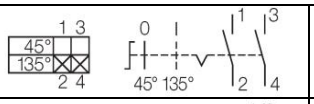
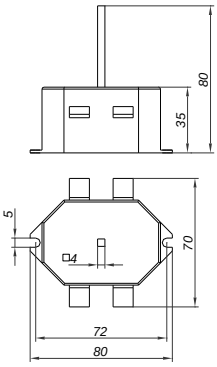
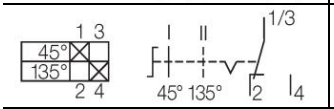
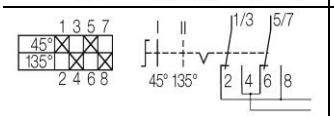
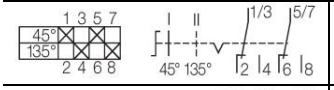
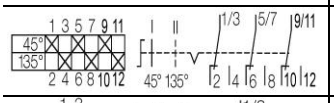
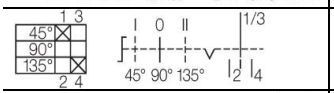
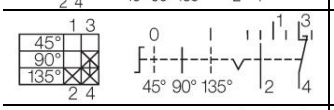
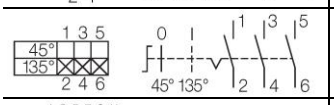
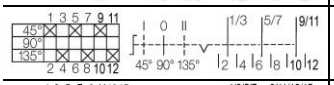
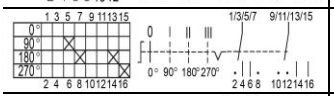
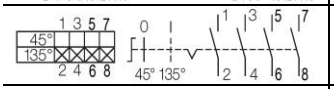
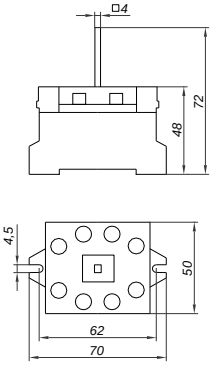
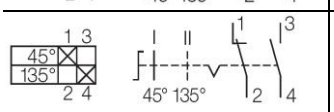
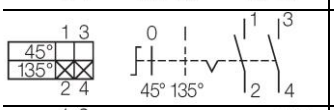
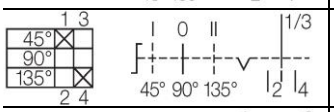
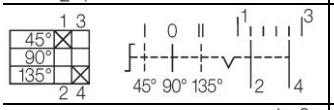
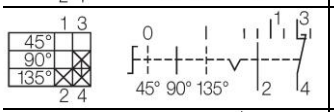
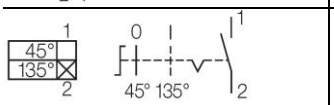
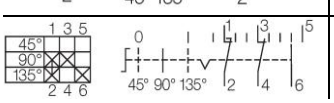


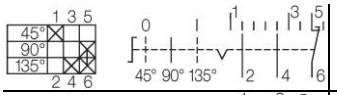
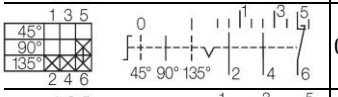
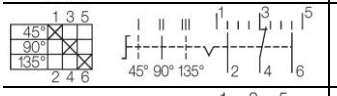
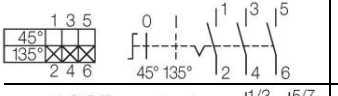
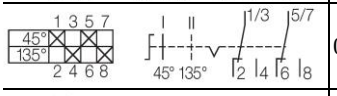
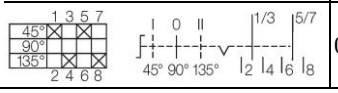
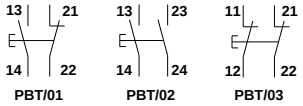
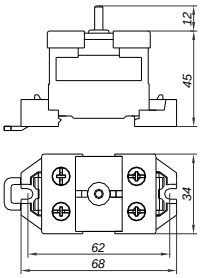
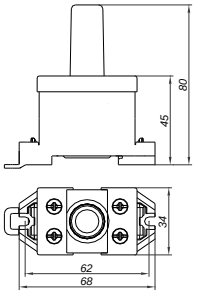
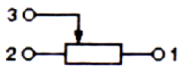
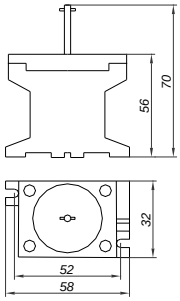
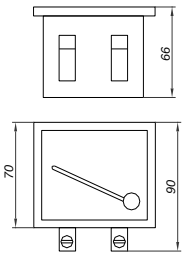
ACTUATORS AND INDICATOR ELEMENTS:

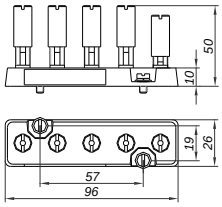
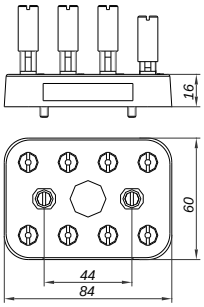
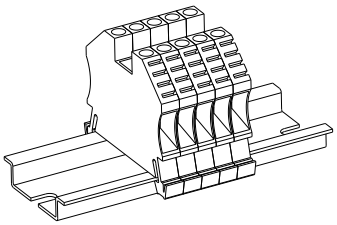
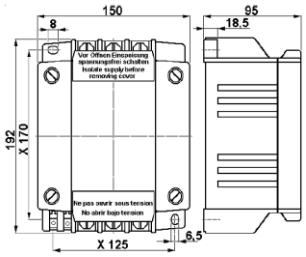
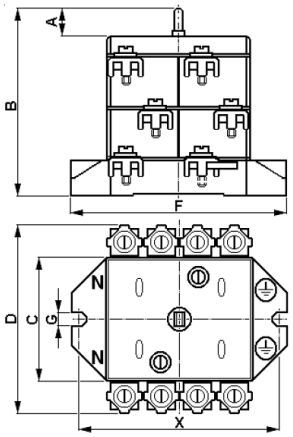
TYPE	DESCRIPTION	MOUNTING	DIMENSION
SMO 17/.	SWITCH ACTUATOR - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 II 2GD Ex e I/II IP66 - certificate: HREx T 06.025U		
SAM 72	FRONT ELEMENT OF MEASURING INSTRUMENTS - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD Ex e II IP66 - certificate: HREx T 06.026U		
SPO 01/.	PUSCHBUTTON ACTUATOR - manufacturer: TEP Ex d.o.o. - explosion protection: - II 2GD EEx e II T80°C IP66 - certificate: HREx T 04.020U		 Type SPO 01/. SPO 01/01 — 0 SPO 01/02 — I SPO 01/03 — II SPO 01/04 — red SPO 01/05 — green SPO 01/06 — white SPO 01/07 — START SPO 01/08 — STOP SPO 01/09 — ON SPO 01/10 — OFF
SPO 02/.	FRONT ELEMENT OF SIGNAL LAMP - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II T80°C IP66 - certificate: HREx T 04.020U		 Type SPO 02/. SPO 02/01 — RED TRANSP. SPO 02/02 — GREEN TRANSP. SPO 02/03 — YELLOW TRANSP. SPO 02/04 — TRANSPARENT
GHG 410 1904 R0012	KEY-OPERATED PUSHBUTTON ACTUATOR - manufacturer: CEAG GmbH - explosion protection: certificirano unutar GHG 41...R... II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117		

GHG 410 1905 R0005	MUSHROOM-HEAD PUSHBUTTON ACTUATOR (EMERGENCY-STOP) - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117		
GHG 410 1905 R0006	KEY-OPERATED MUSHROOM-HEAD PUSHBUTTON ACTUATOR (EMERGENCY-STOP) - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117		
GHG 410 1944 R0010	SWITCH ACTUATOR - manufacturer: CEAG GmbH - explosion protection: II 2G/D EEx e II IP66 - certificate: PBT 00 ATEX 3117		
SPU 25 (M25)	CABLE GLAND - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II IP66 - certificate: HREx T 00.005X		
GHG 960 1955	CABLE GLAND - manufacturer: CEAG GmbH - explosion protection: II 2GD EEx e II IP66 - certificate: PBT 99 ATEX 3101X, PTB 99 ATEX 3128X		 A = M16-M40
FGA1 – FGA4	CABLE GLAND - manufacturer: ELFIT S.p.A - explosion protection: II 2GD EEx d IIC Eex e II IP66/67 - certificate: CESI 02 ATEX 081 X		 A = M16-M40
SPC 25 M25	PLUG - manufacturer: TEP Ex d.o.o. - explosion protection: II 2GD EEx e II IP66 - certificate: HREx T 04.009		
GHG 960	PLUG - manufacturer: CEAG GmbH - explosion protection: II 2GD EEx e II IP66 - certificate: PBT 99 ATEX 3130		 A = M16-M40

BUILD-IN COMPONENTS:

TYPE	DESCRIPTION + technical data	WIRING DIAGRAM		DIMENSION
SMS 03/.	CONTROL SWITCH - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2G Ex de IIC - rated voltage: 660V - rated current: 16A - rated section: 2,5mm^2 - certificate: HREx T 01.016U		SMS 03/1	
			SMS 03/4	
			SMS 03/5	
			SMS 03/6	
			SMS 03/12	
			SMS 03/3	
			SMS 03/2	
			SMS 03/7	
			SMS 03/10	
			SMS 03/8	
			SMS 03/9	
			SMS 03/11	
GHG 23. GHG 29.	CONTROL SWITCH - manufacturer: CEAG GmbH - explosion protection: II 2G Ex de IIC - rated voltage: 690V - rated current: 10/20A - rated section: 2,5/6 mm^2 - certificate: GHG 23. - PTB 98 ATEX 1116U GHG 29. - PTB 98 ATEX 1118U		060	
			062	
			065	
			061	
			063	
			067	
			011	
			034	

		 037	
		 049	
		 023	
		 019	
		 033	
		 024	
PBT/.	PUSHBUTTON - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2GD Ex de IIC T6 - rated voltage: 690V - rated current: 16A - rated section: 2,5mm^2 - certificate: HREx T 06.028U		
SLP	SIGNAL LAMPS - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex de I II 2GD Ex de IIC - rated voltage: 20-250V AC/DC - I_{max}: 20mA - rated section: 2,5mm^2 - certificate: HREx T 06.027U		
GHG 41.	POTENTIONMETER - manufacturer: CEAG GmbH - explosion protection: II 2G Ex de IIC - rated voltage: 250V - resistance range: 100-10 000Ω - scale: 0-100% - connection terminal: 2,5mm^2 - certificate: PBT 97 ATEX1081U		
AM 45/72, VM 45/72	MEASURING INSTRUMENTS - manufacturer: CEAG GmbH - explosion protection: II 2G EEx em IIC EEx ib Iic - measuring range: AM: n/1A 0-20mA 0-25A direct 4-20mA VM: n/1A 6-415V 6-660V - scale: 0-600A, 20 tipova - connection terminal: 1,5-4mm^2 - certificate: PBT 99 ATEX 2032U	-	

SL 5	MANTLE TERMINALS - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex e I II 2GD Ex e IIC - rated voltage: 400V - connection terminal: 4mm^2 - certificate: HREx T 05.002U	-	
SL 8	MANTLE TERMINALS - manufacturer: TEP Ex d.o.o. - explosion protection: I M2 Ex e I II 2GD Ex e IIC - rated voltage: 400V - connection terminal: 4mm^2 - certificate: HREx T 05.002U	-	
EURO 4/35 EURO 16-25/35	TERMINALS 5 terminals 4 mm^2 with rail 35-7,5 TH - manufacturer: MORSETTITALIA - explosion protection: II 2GD EEx e II - certificate: KEMA 03ATEX2118 U 2 terminals 16 mm^2 with rail TH 35-7,5 - manufacturer:MORSETTITALIA - explosion protection: II 2GD EEx e II - certificate: KEMA 03ATEX2118 U	-	
NH 00	MAIN FUSE type: NH0 300XX, NH0 301XX - manufacturer: CEAG GmbH - explosion protection: II2G Ex de IIC - certificate: PTB 99 ATEX 1066U		
HSC 300 40 HSC 300 80 HSC 400 40 HSC 400 80	MAIN CURRENT SWITCH type: HSC ... .. - manufacturer: CEAG GmbH - explosion protection: II2G Ex de IIC certificate: PTB 99 ATEX 1031U		 Dimensions | 40A | 80A | 125 / 180A A | 34 | 38,5 | 16 B | 87 | 130 | 159 C | 73 | 131 | 146 D | 118 | 165 | 194 X | 115 | 141 | 170 F | 128 | 161 | 193 G | 6.3 | 9.5 | 12

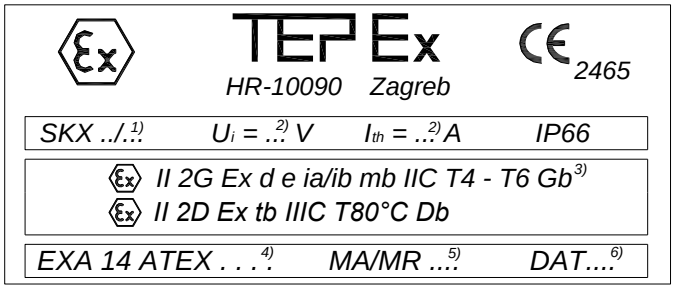
MAINTANCE, REPAIR AND OVERHAUL

Maintenance is performed in accordance with EN 60079-17:2007, the national rules and user policy. Repair and overhaul is performed in accordance with EN 60079-19:2007 and applicable national rules. Repairs that affect the explosion protection, may only be carried out by TEP Ex or a qualified electrician in compliance with the national rules.
Modifications to the control unuts or changes of its design are not permitted. Every improper usage, as well as every unofficial repair or modification of the product, release the manufacturer of all responsibilities..

MARKING

Explosion protected control units, types SKX 12 - SKX 15, are labeled with:

- marking labels



- warning label:

RESPONSIBILITY AND AUTHORIZATION
Responsibility and authorization are defined by the "Regulation on technical supervision over the electrical stations, installations and equipment intended for usage in potentially explosive atmospheres" . This Manual represents the most relevant information about the product. Adequate national laws and regulations supplement it. The person in charge is required to secure its employment in the industrial unit. Every improper usage, as well as every unofficial restructuring, repair or restoration of the product, release the manufacturer of all responsibilities**.**

STORAGE AND TRANSPORT
Transport and storage is only allowed in the original packaging, on the way pointed out on the carton box.

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